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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

G. OLARU

Appl. No.: 10/726,482

Filed: December 4, 2003

For: **Injection Molding Nozzle with
Embedded and Removable Heaters**

Confirmation No.: 7525

Art Unit: 3752

Examiner: Hogan, James Sean

Atty. Docket: MMID 2955

Revised Appeal Brief Under 37 C.F.R. § 41.37

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This Revised Appeal Brief is filed in response to the Notice of Non-Compliant Appeal Brief mailed August 22, 2006. This Revised Appeal Brief adds the Evidence Appendix and Related Proceedings Appendix, indicating "None" for each.

This is an appeal pursuant to 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1, 3, 4, 6-9, 12, 13, 15, 16, 19, and 20 as set forth in the Final Office Action mailed January 10, 2006. This Appeal Brief is presented in the format set forth in 37 C.F.R. § 41.37 and is accompanied by the fee set forth in 37 C.F.R. § 41.20(b)(2).

I. Real Party in Interest

The Real Party in Interest in the above-referenced application is Mold-Masters Limited by virtue of the assignment from the inventor to Mold-Masters Limited recorded at reel 014767, frame 0520.

II. Related Appeals and Interferences

There are no appeals or interferences related to this appeal.

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Claims 1, 3, 4, 6-9, 12, 13, 15, 16, 19, and 20 stand finally rejected and are the subject of this appeal.

Claims 5, 10, and 14 stand objected to as being dependent upon a rejected base claim, the Examiner indicating that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

IV. Status of Amendments

No amendments were filed subsequent to the final rejection.

V. Summary of Claimed Subject Matter

Independent claim 1 recites an injection molding heated nozzle (FIGS. 1-3, item 10; FIG. 4, item 130; FIG. 5, item 134; FIG. 6, item 140; FIG. 7, item 150; paragraphs [0018]-[0020], [0028], [0029], [0032], and [0033]) comprising a nozzle body (FIGS. 1-7, item 12; paragraph [0020]) defining a melt channel (FIGS. 1-7, item 14; paragraph [0018]); a first heater (FIGS. 1-4, 6, 7, item 20; paragraph [0020]) at least partially embedded in the nozzle body for heating a first portion of the melt channel; and a second heater (FIGS. 1-7, item 40; paragraph [0021]) slidably attachable to the nozzle body for heating a second portion of the melt channel, such that the second heater at least partially overlaps the first heater (FIGS. 1-7; paragraph [0022]).

Independent claim 4 recites an injection molding heated nozzle (FIGS. 1-3, item 10; FIG. 4, item 130; FIG. 5, item 134; FIG. 6, item 140; FIG. 7, item 150; paragraphs [0018]-[0020], [0028], [0029], [0032], and [0033]) comprising a nozzle body (FIGS. 1-7, item 12;

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paragraph [0020]) defining a melt channel (FIGS. 1-7, item 14; paragraph [0018]); a first heater (FIGS. 1-4, 6, 7, item 20; FIG. 5, item 136; paragraphs [0020] and [0029]) located around and in contact with an external surface of the nozzle body; and a second heater (FIGS. 1-7, item 40; paragraph [0021]) slidably attachable to the nozzle body for heating a second portion of the melt channel, such that the second heater at least partially overlaps the first heater (FIGS. 1-7; paragraph [0022]).

Independent claim 15 recites an injection molding apparatus (FIG. 1, item 100; paragraph [0018]) comprising an injection molding manifold (FIG. 1, item 106; paragraph [0018]) and a nozzle (FIGS. 1-3, item 10; FIG. 4, item 130; FIG. 5, item 134; FIG. 6, item 140; FIG. 7, item 150; paragraphs [0018]-[0020], [0028], [0029], [0032], and [0033]) in fluid communication with the injection molding manifold at a first end and a mold gate (FIG. 1, item 110; paragraph [0018]) of a mold cavity (FIG. 1, item 14; paragraph [0018]) at a second end. The nozzle includes a nozzle body (FIGS. 1-7, item 12; paragraph [0020]) defining a melt channel (FIGS. 1-7, item 14; paragraph [0018]). The injection molding apparatus further includes a first heater (FIGS. 1-4, 6, 7, item 20; paragraph [0020]) at least partially embedded within an external surface of the nozzle body for heating a first portion of the melt channel and a second heater (FIGS. 1-7, item 40; paragraph [0021]) slidably attachable to the nozzle body for heating a second portion of the melt channel, such that the second heater at least partially overlaps the first heater (FIGS. 1-7; paragraph [0022]).

Independent claim 16 recites an injection molding heated nozzle (FIGS. 1-3, item 10; FIG. 4, item 130; FIG. 5, item 134; FIG. 6, item 140; FIG. 7, item 150; paragraphs [0018]-[0020], [0028], [0029], [0032], and [0033]) comprising a nozzle body (FIGS. 1-7, item 12;

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paragraph [0020]) defining a melt channel (FIGS. 1-7, item 14; paragraph [0018]); a first heater (FIGS. 1-7, item 14; paragraph [0018]) located around and in contact with an external surface of the nozzle body for heating a first portion of the melt channel; and a second heater (FIGS. 1-7, item 40; paragraph [0021]) slidably attachable to the nozzle body for heating a second portion of the melt channel, wherein the first portion of the melt channel heated by the first heater is substantially the same portion of the melt channel as the second portion of the melt channel heated by the second heater (FIGS. 1-7; paragraph [0022]).

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 1, 3, 4, 6-9, 12, 13, 15, 16, 19, and 20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,761,557 to Gellert et al. ("Gellert '557") in view of U.S. Patent No. 6,043,466 to Jenko et al. ("Jenko '466").

VII. Argument

A. Rejection of claims 1, 3, 4, 6-9, 12, 13, 15, 16, 19, and 20 under 35 U.S.C. § 103(a) based upon the combined teachings of Gellert '557 and Jenko '466

Independent claims 1, 4, 15, and 16 are patentable over Gellert '557 and Jenko '466 because there is no motivation to combine the references and the Jenko '466 patent teaches away from the proposed combination.

First, there is no motivation to combine the Gellert '557 patent and the Jenko '466 patent. The Examiner stated in the Office Action that

Gellert ('557) teaches a nozzle body having a melt channel with a first heater (102/106) securely attached to the nozzle body. However, Gellert et al. ('557) does not teach a second heater being slideably attached and partially

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overlapping the first heater. Jenko et al. ('446) [*sic* '466] teaches a slide-on heater clamp (100) designed for clamping to an object for heating purposes, especially a nozzle or a hot runner channel (see Abstract). Depending on how far up the body of a nozzle the clamp heater is placed would determine whether or not the first heater of a hot runner channel and the second heater would overlap.

Office Action, p. 3. The Examiner further stated that

it would have been obvious to one skilled in the art to have modified the heated hot runner melt nozzle of Gellert ('557) with the slide-on, heater clamp of Jenko et al ('455) [*sic*, ('466)] in order to provide a nozzle that can be operated in at a potentially higher temperature than originally designed, or as a temporary repair to a hot melt runner nozzle that has experienced a heater failure.

Office Action, p. 4.

Applicant notes that the Examiner in a first Office Action had provided a different motivation to combine the references. In response to Applicant's argument that the Examiner had failed to show a motivation to combine the cited references, the Examiner amended the alleged motivation to combine. The Examiner now asserts that motivation is so that the already-heated nozzle of Gellert can potentially be operated at a higher temperature or as a temporary repair, as noted above. However, neither Jenko '466, nor Gellert '557, provide this motivation.

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The Examiner has relied on *In re Fine* to support his obviousness rejection, arguing that the motivation comes from “the knowledge generally available to one of ordinary skill in the art.” Final Office Action, page 2. However, *In re Fine* supports Applicant’s assertion that there is no motivation to combine the references. As in *In re Fine*, the Examiner “points to nothing in the cited references, either alone or in combination suggesting or teaching [the claimed] invention.” 837 F.2d 1071, 1074 (Fed. Cir. 1988).

The Examiner, instead, has used improper hindsight reconstruction by relying on the Applicant’s specification as the motivation to combine the references. The specification that is subject of the present appeal states that “[i]n some embodiments, the embedded heater may act as the backup heater to the external clamp heater. In some embodiments, the embedded heater and the clamp heater may work simultaneously to improve the heat profile along the length of the nozzle melt bore and provide extra heating in areas of the nozzle where heat escapes faster.” Specification, ¶ [0024]. The Examiner has impermissibly used what he has learned from the present specification as his motivation to combine the references. “To imbue one of ordinary skill in the art with knowledge of the invention ..., when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher.” *W.L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1553 (Fed. Cir. 1983). The Examiner in the present situation has fallen victim to just such syndrome.

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Further, Jenko '466 specifically teaches away from the proposed combination. Jenko et al. teaches that its clamp heater is *a replacement for, not an addition to*, embedded or integrated type heaters. In particular, Jenko et al. states,

Integrated electrical heaters are very expensive, very difficult to manufacture, and impossible to replace, unless one sacrifices the entire nozzle. In many instances, it is preferable to use removable electrical heaters that are less expensive, can be easier manufactured, assembled, tested, and serviced. One major problem that has not been solved satisfactory so far is related to the clamping of the heater to the element to be heated so that an intimate thermal contact is established with minimal loss.

Jenko '466, col. 1, lines 25-33. Thus, it is clear that Jenko '466 is directed to improving the clamping technique in clamp-type heaters, and that such clamp-type heaters are to be used *instead of, not in addition to*, the "very expensive, very difficult to manufacture, and impossible to replace" integrated electrical heaters. One of ordinary skill in the art, reading Jenko '466, would not be motivated to use expensive, difficult to manufacture, and impossible to replace integrated electrical heaters. Accordingly, Jenko '466 does not support the Examiner's proposition that it provides a teaching to add such a clamp heater to an already heated portion of a nozzle. "It is improper to combine references where the references teach away from their combination." MPEP § 2145.X.D.i.

The Examiner's purported motivation to combine the Gellert '557 and Jenko '466 patents "in order to provide a nozzle that can be operated in at a potentially higher temperature than originally designed, or as a temporary repair to a hot melt runner nozzle

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that has experienced a heater failure" appears to suggest that a user would add the clamp heater of the Jenko '466 patent to an already purchased nozzle of the Gellert '557 patent. In addition to there being no support or motivation for such an action in the references, one of ordinary skill in the art would not be motivated to retrofit a nozzle with a clamp heater. Such a clamp heater cannot be simply added to a nozzle with an embedded heater. The controller for the heater would be designed for the single embedded heater, not the combination of the two; the controller would have to be re-designed and programmed to accommodate the two heaters working together. Wiring for the clamp heater would need to be accommodated in the system. Further, adding a clamp heater as a "temporary repair" to a nozzle with an embedded nozzle that has experienced a heater failure would take as much or more effort and time than replacing the nozzle. In order to add the clamp heater, disconnect the element heater, accommodate the wiring to add the clamp heater, possibly if necessary modify the controller, etc., the hot runner mold would need to be taken apart, thereby interrupting the molding process. This is the very process that is avoided with a nozzle having both an embedded heater and a removable heater provided at the outset, as recited in the present invention. Accordingly, one of ordinary skill in the art would not have been motivated to combine the Gellert '557 and Jenko '466 patents.

Claims 3, 6-9, 12, 13, 19 and 20 depend from and add features to one of the listed independent claims and are therefore allowable over the Gellert '557 and Jenko '466 patents for at least the same reasons as the independent claim from which they depend.

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For the foregoing reasons, the Examiner's rejections of claims 1, 3, 4, 6-9, 12, 13,
15, 16, 19, and 20 should be reversed.

Respectfully submitted,

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Appendix of Claims

1. An injection molding heated nozzle comprising:
a nozzle body defining a melt channel;
a first heater at least partially embedded in the nozzle body for heating a first portion of the melt channel; and
a second heater slidably attachable to the nozzle body for heating a second portion of the melt channel, such that the second heater at least partially overlaps the first heater.
2. (Canceled).
3. The nozzle of claim 1, wherein the first heater is located in a groove in the nozzle body.
4. An injection molding heated nozzle comprising:
a nozzle body defining a melt channel;
a first heater located around and in contact with an external surface of the nozzle body; and
a second heater slidably attachable to the nozzle body for heating a second portion of the melt channel, such that the second heater at least partially overlaps the first heater.
5. The nozzle of claim 4, wherein the first heater is a film heater.

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6. The nozzle of claim 1, wherein the first portion of the melt channel heated by the first heater is substantially the same as the second portion of the melt channel heated by the second heater.

7. The nozzle of claim 6, wherein the second heater is electrically independent from the first heater.

8. The nozzle of claim 7, wherein at least one of the first and second heaters is alternatively operable to run simultaneously with and as a back-up to the other heater.

9. The nozzle of claim 7, wherein at least one of the first and second heaters is operable to run simultaneously with or as a back-up to the other heater.

10. The nozzle of claim 1, wherein the first heater includes two independent heaters.

11. The nozzle of claim 1, wherein the second heater includes two independent heaters.

12. The nozzle of claim 1, wherein the second heater is located on a sleeve that is clampable to the nozzle body.

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13. The nozzle of claim 12, further comprising at least one thermocouple for monitoring the temperature of the first and/or second heater.

14. The nozzle of claim 13, wherein a first thermocouple is located on the clampable sleeve for monitoring the temperature of the second heater and a second thermocouple is positioned along the nozzle body for monitoring the temperature of the first heater.

15. An injection molding apparatus comprising:

an injection molding manifold;

a nozzle in fluid communication with the injection molding manifold at a first end and a mold gate of a mold cavity at a second end, the nozzle having a nozzle body defining a melt channel;

a first heater at least partially embedded within an external surface of the nozzle body for heating a first portion of the melt channel; and

a second heater slidably attachable to the nozzle body for heating a second portion of the melt channel, such that the second heater at least partially overlaps the first heater.

16. An injection molding heated nozzle comprising:

a nozzle body defining a melt channel;

a first heater located around and in contact with an external surface of the nozzle body for heating a first portion of the melt channel; and

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a second heater slidably attachable to the nozzle body for heating a second portion of the melt channel, wherein the first portion of the melt channel heated by the first heater is substantially the same portion of the melt channel as the second portion of the melt channel heated by the second heater.

17. (Canceled).

18. (Canceled).

19. The nozzle of claim 16, wherein at least one of the first and second heaters is alternatively operable to run simultaneously with and as a back-up to the other heater.

20. The nozzle of claim 16, wherein at least one of the first and second heaters is operable to run simultaneously with or as a back-up to the other heater.

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Evidence Appendix

None

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Related Proceedings Appendix

None